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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,569	08/24/2001	Mitsuaki Hata	Q65994	8860

7590

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EXAMINER

MACKEY, TERRENCE M

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,569

Applicant(s)

HATA, MITSUAKI

Examiner

Terrence Mackey

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03-04-03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 11 - 14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim is presented. See MPEP § 608.01(n). Accordingly, the claims 11 - 14 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 2 as amended recite the limitation "said coating film " in lines 9 and 10 of each respective claim. There is insufficient antecedent basis for this limitation in the claims. Claim 2 additionally recites the limitation "said solvent" in line 4 for which there is insufficient antecedent basis in the claim.

Claim 8 as amended recites the limitation "an unprocessed region where said coating film is to be left as a necessary film and a processed region where said coating film is to be removed". There is insufficient antecedent basis for the phrase "coating film" in the claim.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 – 4, 6, and 8 – 10 are rejected under 35 U.S.C. 102(a) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Sato (US 5,993,547). Applicant claims a method for removing an unnecessary portion of a resist film from a substrate by covering the unnecessary portion of the substrate surface with a cover member having a top and supplying a solvent from the top of the cover member through a supply hole formed at a predetermined position in the cover member to remove the unnecessary portions of said film. Applicant discloses that a gap between the cover member and the substrate surface covered with said film is to be sized such that temperature distribution is not caused in said resist film under the influence of heat transfer from the cover member or due to convection of gas produced in the gap.

Sato discloses a method and apparatus for removing a desired portion of a resist film formed on a substrate through use of a cover member. Solvent for dissolving the desired portion of the resist film is supplied by a nozzle formed at a predetermined position of the cover member. A gap is defined between the bottom surface of the cover member and the substrate. The gap between the peripheral edge of the cover and the substrate surface is minimized to the greatest possible extent (column 4, lines 44-49). Processing solution together with gaseous by-products generated in the processed region will be removed by forced-exhausting means connected to the lower

portion of the cover member and thus not result in temperature distribution in the resist film.

It is the Examiner's position that the cover member disclosed by Sato will result in minimal heat transfer to the substrate due to the limited area of the substrate surface being juxtaposed relative the bottom surface of the cover member.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7, and 15 – 17 are rejected under 35 U.S.C. 103(a) as obvious over Sato (US 5,993,547) in view of Koshiishi (US 5,474,807). Sato teaches the features for removing a peripheral portion of a resist film formed on a substrate recited above, however the reference does not teach the use of a string-like member interposed between the cover member and the substrate surface nor applicant's claimed gap dimensions. The Sato reference furthermore does not teach additionally supplying the solvent from the rear side of the substrate towards the processed region.

Koshiishi discloses a method and apparatus for removing a coating film from a confined peripheral region of a substrate by covering the substrate with a guide member that is spaced from the substrate surface from which the coating film is to be unprocessed. Processing solution is introduced into a gap between the substrate surface to be processed and a peripheral portion of the guide member by a supply nozzle while spinning the guide member and substrate together about a substantially vertical axis which keeps the processing solution confined to the gap region by surface tension to achieve removal of the coating on the outer region of the substrate. An example is given on column 11, lines 17-24, wherein the gap between the guide member and the substrate surface to be processed is 0.15 millimeter and with a gap of 1.65 millimeters between the inner surface of the guide member and the substrate surface. The reference teaches the proper size for the gap is to be determined based upon consideration of the viscosity of the solvent used in the process (column 7, lines 54-57). Koshiishi discloses that the guide member may include a sidewall portion and that the gap formed between the guide member and the substrate surface need not have a uniform width as the guide member may have a pyramidal or dome shape (column 14, lines 38-42). Koshiishi furthermore discloses the use of nylon rings to preserve the gap in the region from which the coating is to be removed (column 11, lines 17-30). An additional processing solution supply nozzle positioned at the opposite side of the substrate from the above mentioned supply nozzle may be used to more quickly remove the unnecessary portions of the coating (column 8, lines 35-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a string-like member interposed between the cover member and the substrate surface and furthermore to additionally supply the solvent from the rear side of the substrate towards the processed region as taught by Koshiishi to the process and apparatus of Sato achieve the benefits of improved resist removal from the processed region of the substrate.

Response to Arguments

Applicant's arguments with respect to claims 1 - 14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Remaining references cited of interest to show the state of the art.

No claim is allowed.

Papers relating to this application may be submitted to Technology Sector 1700 by facsimile transmission. Papers should be faxed to Crystal Plaza 3, Art Unit 1765, using fax number (703) 305-6357. All Technology Section 1700 fax machines are available to receive transmissions 24 hrs/day, 7 days/wk. Please note that the faxing of such papers must conform to the Notice published in the Official Gazette, 1096 OG 30, (November 15, 1989).

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Terrence Mackey whose telephone number is (703)

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305-5504. The Examiner can normally be reached Monday - Friday from 7:00 AM - 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, Ben Uteck, can be reached at (703) 308-3836.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0661.

TMM

May 08, 2003



ROBERT KUNEMUND
PRIMARY EXAMINER